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RETAINED DEBRIS
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CAUSES OF PUERPERAL FEVER

THE INTRA-UTERINE DOUCHE AND CURETTE.

—BY—
DR. CHAS. WARRINGTON EARLE,
CHICAGO.



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The Consideration of some Questions Regarding Puerperal Fever.

THE THEORIES OF THE ETIOLOGY—THE INTRA-UTERINE DOUCHE —THE USE OF THE CURETTE.

BY CHAS. WARRINGTON EARLE, A.M., M.D.

Prof. of Obstetrics College of Physicians and Surgeons, Chicago. Prof. Diseases of Children, Woman's Medical College, Chicago.

A former student of mine, now practicing in Michigan reports that a neighboring practitioner has lost twelve parturient women during the last six months. An examination of our mortality reports always shows deaths from puerperal causes and an inquiry among obstetricians and midwives will reveal the fact that deaths from fever, malaria, etc., occasionally take place. Many say that they have never seen a case of child-bed fever, but nevertheless deaths occur.

I need not speak of the terrible mortality which has been present in times past in the large hospitals of the old world, such as in the Hospital Lariboisiere, where it has been 8 per cent; or in the Maternity in Paris where it was formerly 10 per cent. In Berlin at one time there was one death from child-birth in every 152 confinements, and in Vienna 10 per cent were lost. In all probability it has arisen to 15 per cent during some epidemics. Notwithstanding these figures we have men in our profession who say that parturition is physiological,—a process as natural as the digesting of food. If it is a physiological process, surely something is wrong, and we need to study it, and if it is pathological, with such a mortality it is certainly our duty to investigate the causes that bring about such terrible results.

It seems that it should be enough that a woman pass through all the discomforts and inconveniences and solicitudes of pregnancy, and the pains and anxiety of parturition, without being subjected to additional dangers at the close of these processes. But it is not so. During the few days following there comes about, in almost a multitude of cases, such a series of unfortunate results, that many of the most valuable members of the community, and among them those who are surrounded with the most beautiful prospects for the future, are consigned to young and untimely graves.

It is a well-known fact that in Carl Braun and Spaeth's wards in Vienna the mortality

has been reduced to 56-100 of 1 per cent or a little over half of 1 per cent.

As I walked through their wards during the past summer and came into rooms where thirty women had been confined during the preceding thirty-six hours and would find the air in that room perfectly pure, absolutely free from odor, and every one with normal temperature, or so nearly normal that it is not worth mentioning, and then remembered that in private practice, with only a single woman in a house, and sometimes in new residences, where contagious or infectious diseases never existed, most terrible odors and high temperature and continuous fevers were sometimes noticed—indeed a much worse condition with a single patient in a private house than was noticed in a ward with thirty patients in a hospital atmosphere. I was convinced that their method of practice was worth imitating.

In these wards when a woman's temperature rises to 103 she is given a uterine douche and the curette is frequently used. I provided myself with the necessary appliances and determined should occasion demand, to try their efficacy. I did not wait long. A few days after my return I was called to see a case in this city, with the following history: A young woman from a neighboring state came to the city and had a criminal abortion performed. At the end of the week her symptoms were so alarming that she changed physicians. He found her temperature 103° and called me in consultation. Intra-uterine douche of carbolyzed water did not bring it down, and she was curetted and a considerable amount of membranes and debris was brought away. A coil was placed upon her abdomen, and her temperature, which had been 105½, came down to normal in twelve hours, and she made a recovery without a single bad symptom.

CASE 2. A lady on North Hoyne avenue was confined and did well until the tenth day. I was requested to see the patient and

found her temperature 104°. Gave intra-uterine douche and curetted. Temperature came down and she made an excellent recovery.

CASE 3. A lady on the south side aborted at the end of four months. It is probable that this loss was from gonorrheal infection. Temperature the second day 104 1-5; anxious look; bad pulse; more or less distention of the abdomen. Symptoms were all bad. Gave intra-uterine douche and curetted. Temperature came down to normal the following morning and she made a good recovery.

Other cases have been operated upon and in every instance where contra-indication did not exist a favorable result has always taken place.

Operations undertaken as the last and only resort have not been uniformly successful, but no bad symptom has ever been produced.

There is no doubt in my mind but that puerperal diseases are more frequent than many are willing to believe; that they take place frequently in the practice of physicians who say they have no cases of puerperal infection or puerperal fever. It demonstrates that we need to study this matter to a greater extent than ever before.

Of the three cases which I briefly narrate, the temperature coming down at once, and an excellent recovery taking place, it is safe to say that without the operation they would have had a lingering sickness with all the symptoms of septicemia. It is possible that one would have died, and entirely probable that those recovering would have had an illness of from three to six weeks.

Where does this disease come from? Are we always certain that all of the membranes and all the placenta come away? Can any one always tell by an examination that there is not a small amount of debris still remaining in the uterus? Do all practitioners examine the placenta carefully? Are these women poisoned by themselves, or must the doctor or nurse bear the responsibility?

These are some of the questions which come to me as I write. Of course I can not consider them all in this paper.

I desire more particularly at this time to speak of the retention of membranes and small pieces of placenta as a cause of puerperal fever, but in order to understand the relation between these substances as the cause of this terrible disease and other factors which enter into the etiology of puerperal fever, it will be profitable to discuss very briefly a few of the different theories respecting this disease.

The great fight carried on during the past forty years has been to decide whether puerperal fever is produced by causes from within or from without; in other words, is puerperal fever autogenetic or heterogenetic. It is entirely useless to discuss old theories which long since have been or should have been

consigned to the museum of antiquities, and so it will not be profitable for us to speak of any theory previous to the time when Semmelweis, in 1847, advanced his theory. In the main this was that puerperal fever was due to absorption of decomposing matter and that it may come from either *auto* or *hetero* infection.

Among our own countrymen the ideas advanced by Fordyce Barker have held firm sway. I will not give his entire confession of faith as he terms it, but will quote briefly from it.

He believes that the disease comes from some unknown blood change and that we are as ignorant of it as we are of the blood changes in scarlet fever or any of the other essential fevers. He believes that it may be epidemic, infectious and contagious. He says in conclusion that septicemia may be developed in a puerperal woman either from autogenetic or heterogenetic infection, without puerperal fever, but that this infection may also complicate puerperal fever. In the celebrated discussion on puerperal fever in New York in 1884 he held substantially the theories advanced above, although his ideas were promulgated in 1874.

One other authority in this country has studied with very great earnestness the germ theory of puerperal diseases, and his opinions are held in very high regard, not only by us, but by foreign authorities. I refer to Prof. Lusk who, with some restrictions, evidently believes in the germ theory, but says the difficulty is best solved by assuming with Genzmer and Volkmann that there is such a thing as an aseptic surgical fever, due to the absorption of the products of physiological tissue changes at the seat of injury. He also says that we never can exclude the possibility of infection in puerperal wounds, and in the sixth proposition in which he discusses the subject, he uses the following language: "In the present state of our systematic knowledge it is necessary to admit that there is a limited number of febrile and inflammatory disturbances occurring in puerperal woman, the bacterial origin of which may be fairly questioned."

Parvin in his late work is probably more in sympathy with advanced German ideas on this subject than any other American author. He says the doctrine of autogenesis is a confession of ignorance, the creed of fatalism, the cry of distress. Self-infection means that the house sets itself on fire, and that the powder magazine is exploded without any mischievous spark, and that this doctrine of the autogenetic origin of puerperal septicemia is, to his mind, the very pessimism of obstetric medicine. He concludes by exclaiming, "Why should the city guard its gates when the enemy can already be in the citadel and begin the battle there."

We now turn to the English authorities. Galabin says that the first possible internal source of poison is the blood itself. Owing

to the rapid absorption accompanying the involution of the uterus, a large quantity of effete material is poured into the blood to be disposed of by the excretory organs. He discusses both autogenetic and heterogenetic forms of the disease, and says that even in autogenetic forms the poison is generally produced by germs received from the air, or some way from the outside, and that the sanitary condition of the house or locality may have a great influence.

Barnes in his work of 1885 certainly believes in the autogenetic origin of puerperal fever, and describes rather fully what he calls excretory-autogenetic puerperal fever. Speaking somewhat in doubt in regard to the germ theory Barnes asks how these infective microbes are introduced. He makes the statement that some women are attacked with puerperal fever before labor, and he also asks the question, "How do organisms find entrance into the system in those most terrible cases of all in which death results in a few hours?"

Let us now examine into the teachings and methods of practice of continental authorities, the German, French and Italian teachers.

In the main, I think they agree as to etiology. If the question is asked in regard to the probability of recovery after a given obstetrical process or operation, the reply has come to us repeatedly: "She will recover, if I have not infected her."

The summary of everything is that puerperal fever in every instance is produced by some cause from without; that there is no such thing as autogenetic infection. Retained membranes and placenta, according to this theory, are perfectly inert if infection from without does not take place. This makes the responsibility simply terrible. Kucher speaking on this subject acknowledges that a physician has a perfect right to his own theories, but says that in a question of great consequences no such liberty can be permitted.

The cause of puerperal fever is infectious matter which undoubtedly exists in many, forms and gains entrance into the system in many ways. Whatever the supposed cause, as we formerly thought, whether contused tissues or clots, or pieces of membranes or placenta, it is now believed that the additional element of *infection* must be obtained from some source foreign to healthy tissue. It is explicitly stated by some authorities that blood coagula and pieces of placenta in a uterus *firmly contracted* is perfectly inert, unless infection takes place. In the main matic infective disease, the microbes or their germs must come from without. He makes some statements which modify this to a certain extent, but he is coming to believe, as is evident throughout his entire oration, in the impossibility of auto-genetic infection.

Every practitioner of experience has seen

pieces of placenta and quite large clots of blood come away and no signs of fever follow. On the other hand the same practitioner has seen pieces of placenta or small clots expelled by the intra-uterine injections which had been ordered after a high temperature with sepsis undoubtedly present. What makes the difference? Simply this:—In one case the debris has escaped infection, in the other, from some cause (sometimes absolutely undiscoverable), the debris has become infected.

I do not believe it is possible that we can ever be sure that every particle of placenta or all of the membranes are expelled, no matter how careful we may be in the examination.

Inasmuch as it is impossible in the present state of our knowledge to always say that our hands and instruments, and the hands and appliances of the nurse are perfectly aseptic, it is our duty to take extraordinary precaution in regard to the introduction of septic matter. Not only this, but we should inspect the placenta, wash it out and place it together to look for small pieces that may be absent, with all these precautions we cannot be certain that everything has come away. There may be small pieces of placental tissue which have existed on the membranes somewhat remote from the main body of the placenta. These may be entirely detached from the membranes and no earthly power can detect it. And then there is evidence sometimes that all of the decidua does not come away—that there is something of this left in the uterus. There is no doubt but that we have very frequently some debris left in the uterus, which will give rise to septicemia if only an infectious element comes in contact with it.

It appears to me that in the present state of knowledge no one is justified in disbelieving the germ theory and not taking the precautions which have given such remarkable results in some of the lying-in hospitals. I quite agree with the authority whom I have already quoted, that we have no right to take such a great responsibility as to be disbelievers, even if we cannot accept all the advanced ideas of the German teachers. Their results have been so good that we are not justified in practicing obstetrics in the slipshod way in which a great many of our practitioners have practiced, and it is to be feared are practicing today.

One of the most valuable contributions to our present state of knowledge in regard to micro-organisms and suppuration has recently come to hand in a prize essay furnished by Geo. Klemperer, an under-graduate clinical student in Berlin. It is in regard to the question as to whether the irritants in the tissue will produce suppuration when no bacteria is present. It is regarded by this gentleman that the precautions taken by previous experimenters, who have gone over this subject before, to prevent entrance of germs into the tissue cavities containing these irritants have been uncertain and inadequate.

He has gone over the method formerly adopted by Straus, of Paris, in 1883, and his process is something as follows:

After producing an eschar on the skin with a Paquelin cautery, he introduces the canula of a sterilized syringe through the eschar beneath the skin. After the puncture is made he again occludes that opening with cautery. Such irritants as turpentine, croton oil and mercury are used, and with the above precautions in three cases only has pus containing micrococci been found. A considerable degree of inflammation is produced by this injection, but no pus. Among his conclusions are the following: Injections of alkalies, organic or inorganic acids, never produce suppuration, if micro-organisms be excluded. The irritants mentioned above produce violent inflammation but no suppuration. If the results of these experiments are demonstrated to be true, it will be safe to say that no suppuration occurs unless through the agency of micro-organisms, and its bearing on infection of pieces of placenta in a contracted uterus will be important.

Another question in regard to these organisms in healthy tissues has been recently gone over by Hauser of Erlangen with the result that micro-organisms do not occur in tissues of healthy animals. All of these arguments and investigations go to prove that auto-genetic poison is impossible and consequently if our cases are followed by sepsis it must be due to an infection which has come from the outside.

Dr. Galabin, in his Hunterian oration on the etiology of puerperal fever delivered recently, used the following language: (It will be remembered that in the early part of this paper I quoted from an obstetrical work of this gentleman, and in that he leaned toward the auto-genetic origin of puerperal diseases.) He says in substance that the old divisions of puerperal fever into auto-genetic and hetero-genetic classes may clearly be regarded as a less radical and scientific division when it is remembered that in every case of true traumatic infective disease, the microbes or their germs must come from without. He makes some statements which modify this to a certain extent, but he is coming to believe, as is evident throughout his entire oration, in the impossibility of auto-genetic infection.

If it is true that some debris may remain in the uterus notwithstanding the greatest possible care, and also true that the most ardent believer in the germ theory sometimes has infection following his obstetric procedures, it seems to me that the operation of relieving the uterine cavity of this poisonous matter, if it can be done early, is one of the first operations to which we should resort in the cure of this dreadful disease.

In every parturient woman whose temperature goes to 103, something should be feared. It will not do for us to fold our hands and try to convince ourselves that it is a little malaria, or that it is milk fever, or something

that may not jeopardize the life of that woman. I am free to admit that we do occasionally have a temperature of 103 to 104 which is trivial and disappears in a very short time. On the other hand I do know that a great number of practitioners who try to convince themselves that this temperature is not due to septic influences, have these cases which last with fever, and sweats, and prostration for weeks, and sometimes months.

It has appeared to me that in the majority of cases that I have watched carefully, that the first explosion, the result of infection, takes place about the third or fourth day and again about the seventh or eighth day. If the uterus of any woman whose temperature goes to 103 on the fourth day could be thoroughly washed out in a way which I shall describe, it is my belief that a very large number of them would have no more fever, that they would have a safe puerperal convalescence. If they are left until the seventh or eighth day, until the second explosion, in many cases the infectious matter and the prognosis will be more grave. Intra-uterine injections first of carbolized water, or, if sublimate solution is used, the uterus must be washed out with perfectly pure water. Then if the temperature does not go down the following day the curette should be used with all possible antiseptic precautions. It does not do to use the finger as a curette, nor does it do to use the small short curettes, as they are entirely inadequate and do not reach the point of disturbance.

If puerperal fever is due, in a given case, to a poison introduced through the lungs, and the general system is invaded before confinement, of course, neither intra-uterine injections or curette is admissible. If, too, the infection comes from an inflammation or suppuration in the tubes, which may have been latent till the irritant and traumatism incident to parturition takes place, these two curative agents are not indicated. But if they can be excluded we must look along the genital tract for the place through which the infection has taken place. If no abrasions are found and the odor does not disappear with the ordinary vaginal douches, then it appears to me we must look to the cavity of the uterus.

THE OPERATION.—INTRA-UTERINE INJECTIONS.

I have in the first place a piece of good-sized rubber tubing, one end of which is provided with a sinker, and the other with an apparatus for regulating the amount of fluid running from the tube. An appliance may be placed upon the tube which will catch upon the side of the pail or pitcher, and serve to keep it in place. The intra-uterine tube is of glass, about fourteen inches in length, somewhat smaller at the uterine point, grooved on the front and back with good-sized perforations. The operation is best done if the patient is placed upon a

table, with an oil-cloth under her, extending to a slop-jar on the floor, so that all the fluid shall run into this receptacle. The external genitalia should be made thoroughly aseptic, then the vagina should be thoroughly douched, and the speculum introduced. The uterus may now be pulled down with the vulsellum and an intra-uterine douche given. There is no rule that can be given in regard to the amount of fluid which should be used at each time, but each operator must judge for himself. Carbolyzed water should usually be used. Injections of bi-chloride solutions in the uterus at full term have been followed by mercurial poisoning, and it is not now regarded as good practice to use this agent. If for any cause it should be used, the cavity of the uterus should be washed out with pure water to rid it of the mercurial salt. The operation may be concluded by the introduction into the uterine cavity of a suppository of iodoform, containing from 15 to 75 grains. Experience has taught us that it is safe to use as high as 75 grains. Any amount above that may be followed by symptoms of iodoform poisoning. If at this or any subsequent time it is deemed advisable to curette the uterine cavity, the same steps in the operation are taken, including at first an intra-uterine douche to clear out all the septic material that is possible, and then using the curette.

CURETTING THE UTERUS.

The instrument that I have been in the habit of using is twelve and one-half inches long. It is not flexible, although I am not certain but that the instrument would be improved for some cases if it was. Its operating end is provided with a dull fenestra about three-quarters of an inch in diameter. A little experience usually teaches one where to find the site of the placenta, over which the curette is drawn, using, of course, only a small amount of pressure. After this is completed, the instrument may be passed around until the entire uterine cavity has been carefully but entirely scraped. This being completed, a very large uterine douche should be given, and then an iodoform suppository introduced. In several cases the temperature has gone down within a very short time, and the patient made a recovery without a single bad symptom. A coil placed over the abdomen is a very valuable adjunct to be used immediately after this operation when the temperature is high, and it is also an important agent to prevent any inflammatory action which might follow the operation. In part of the cases, I am in the habit of giving an anesthetic, but in others the patient stands the operation well without this agent.

